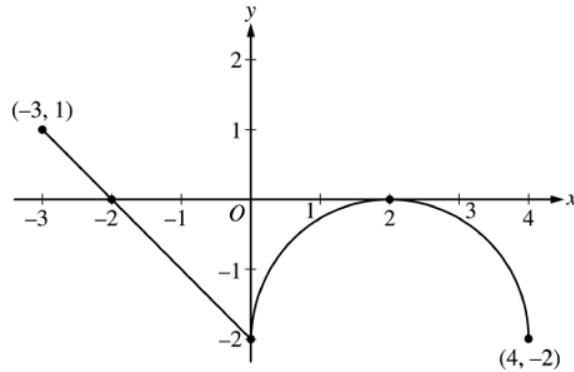


## Properties of Definite Integrals

Graph of  $f(x)$ 

Let  $f$  be the function, given by the graph above, defined on the closed interval  $-3 \leq x \leq 4$  which consists of one line segment and a semicircle. Let  $g(x) = \int_0^x f(t) dt$ .

Find  $g(0)$ ,  $g(4)$ , and  $g(-3)$ .

## Properties of Definite Integrals

$$\int_a^a f(x) dx =$$

$$\int_a^b f(x) dx =$$

$$\int_a^b f(x) dx + \int_b^c f(x) dx =$$

$$\int_a^b k f(x) dx =$$

$$\int_a^b (f(x) \pm g(x)) dx =$$

*Example:*

Given  $\int_{-5}^5 f(x) dx = 14$ ,  $\int_5^8 f(x) dx = -17$ , and  $\int_{-5}^5 h(x) dx = 24$ , find:

**a)**  $\int_5^{-5} f(x) dx$

**b)**  $\int_{-5}^5 (3f(x) - 2h(x)) dx$

**c)**  $\int_{-5}^8 f(x) dx$

